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Non Infectious Causes of Stridor in Paediaric Age Group 0-12 Years in Tertiary Care Hospital

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Abstract
Introduction: *Stridor is an Abnormal, Harsh, High Pitched Inspiratory Sound Produced by Turbulent Airflow Through Partially Obstructed Airway of the Laryngeal area of the Extrathoracic Trachea. Croup & Laaryngomalacia Are the Most Common Infectious & Congenital Etiology of Stridor Respectively*
Aim: *Non Infectious Causes of Stridor in Pediatric age group (0-12 years) in our Institute*
Materials and Methods: *This is an Observational study of 50 Cases of Stridor in Infants and Children Below 12 Years Presented at the Department of Paediatrics, Rajah Muthiah Medical College and Hospital, Chidambaram during January 2015 to December 2015*
Results: *Majority of Stridor Cases are in the age group less than a year (56%) and Laryngomalacia (26%) is the most common non infectious cause of Stridor. males are more commonly affected*
Conclusion: *Majority of Paediatric cases Presenting with airway Problems Necessitates the Immediate Evaluation and Management and Delay in Diagnosis leads to Morbid Outcome.*

Introduction

Evaluation of noisy breathing in infants and children begins with careful history taking and physical examination focusing on the patient's age and character of the noisy breathing. Airway resistance is inversely proportional to fourth power of the radius. Infant's or child's airway is narrow, minor reductions in cross sectional area as a result of mucosal edema or other inflammatory process cause an exponential increase in airway resistance. The word stridor is derived from the Latin word "stridulus" which means creaking, whistling, or grating noise. Stridor is an abnormal, harsh, high pitched inspiratory sound produced by turbulent airflow through partially obstructed airway of the laryngeal area or the extrathoracic trachea. Stridor is a predominant inspiratory monophonic noise. Stridor should be differentiated from stertor later which is described as the low pitched inspiratory snoring sound originating from nasal or nasopharyngeal obstruction .it's not a diagnosis ,but a sign of upper airway obstruction .various etiologies of stridor have been elucidated in this study are correlated with recent literature and conclusions made.

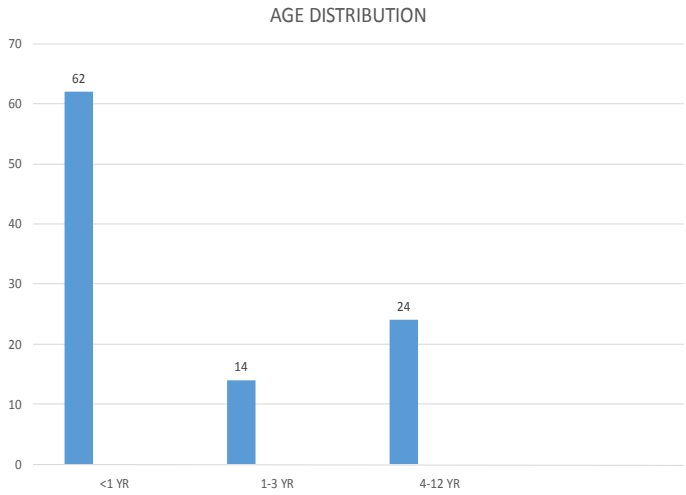
Materials and Methods

This observational study was carried out in the department of pediatrics, RMMCH, Chidhambaram from January 2015 – December 2015. Fifty

patients presented with stridor between the age group 0-12 years were included. Complete workup was done and documented. The patients were followed every month for six months

Observation and Results

In this study, out of 50 cases, 49 were inpatients (98%) and rest of one patients (2%) was treated as outpatients. Majority of them in the age group of less than one year (62%) followed by 4-12 (24%) and then 1-4 years (14%)



In this study, out of 50 cases, male children (70%) are more common than female children (30%), (fig.2). 28 children had croup(EXCLUDED), 13 had laryngomalacia, 3 had angioneurotic edema, 2 had foreign body aspiration, 2 had post intubation stridor, 1 had pierre robin sequence and ranula repair respectively (Table.1).

Table 1 incidence of cases

S.No	Etiology	No.Of Patient	%
1	Laryngomalacia	13	60
2	Angioneurotic edema	3	14
3	FB aspiration	2	9
4	Post extubation stridor	2	9
5	Ranula repair	1	4
6	PRS	1	4

Of all the symptoms, stridor was the main symptom in all cases followed by retraction (90.9%), cough (81.8%), tachypnea (72.7%), rhinorrhea (45.5%), nasal flaring (45.5%) and hoarseness (31.8%) were seen. (Table 2). Majority of having inspiratory (96%) followed by biphasic in (4%) of cases. (fig.3)

Table 2 distribution of signs and symptoms

s.no	Signs & symptoms	No of patients (n=22)	%
1	Retraction	20	90.9
2	Cough	18	81.8
3	Tachypnea	16	72.7
4	Rhinorrhea	10	45.5
5	Nasal flaring	10	45.5
6	Hoarseness	07	31.8

Out of 50 cases, 76% of cases were presented with acute symptoms and 24% of cases were presented with chronic stridor (fig.4)

Out of 28 children that were diagnosed with croup, 18 were male and 10 were female children. All were treated with steroids and nebulised epinephrine according to Westley croup scores and were controlled of all respiratory infections and they were excluded.

Laryngomalacia was the common cause which was the commonest congenital anomaly in the study. 11 were males and 2 were females. Laryngoscopy was done for 11 cases and one infant underwent surgery.

Two out of three cases presented with angioneurotic edema were male. Antihistamines, systemic steroids and parentral epinephrine were given and relieved of symptoms. Two cases diagnosed as post inthubation stridor are males.

Foreign body aspiration was seen in 2 case (1 male & 1 female) and removed. Post extubation stridor was treated by conservative management.

Discussion

The initial evaluation of a child with stridor must begin with a rapid assessment of respiratory status to identify those who need resuscitation.

Taking a proper history and clinical evaluation determine emergent and non emergent etiologies. In this study, various etiologies have been observed. Out of these, acute cases outnumbered chronic cases. Rupa. V, raman R et al showed similar study.

Laryngomalacia was the commonest causes for chronic stridor with male predominance. Holinger LD et al observed the same results.

Foreign body aspiration was seen in 2 cases with male: female ratio of 1:1 of younger than 3 years. Rao prabhakhara. Y and Biraj vamshi Krishna et al studied the similar result in their study of M:F ratio of 1:1:1. Most common symptoms in their study was inspiratory stridor, cough, respiratory difficulty rhinorrhea. Abhishek jaswal and utpal jana et al had similar symptoms in their study.

Angio neurotic edema were seen in 3 patients with male predominace with an idiopathic origin. De silva I et al (12) showed suppored this study most cases with male predominance and stated that there was no statistically significant difference between males and females with respect to the age of presentation and risk factors.

Post extubation stridor was seen in 2 cases with male predominance. In this study, post extubation stridor was treated with parentral steroids and nebulised adrenaline. Regina grigolli cesar et al^(13) supported this study that dexamethasone

And L -epinephrine did not reduce the clinical progression of airway obstruction

Ranula repair and pierre robin sequence constitute 1 case each stridor due to ranula repair was treated with naso- pharyngeal airway. In this study, pierre robin sequence presented with stridor, swallowing difficulty and sleep disordered breathing, who was treated conservatively like prone positioning, alternative feeding practices & nasopharyngeal airway. Nirupan V & cooper T et al supported this study. In the current study, males were predominantly seen

Favourable outcome were observed in all studied cases. There was no morbidity & mortality in this study

In the follow up period, 82% of cases were free of stridor and 18% of cases decreased in severity

Conclusion

In the study, acute cases were more than chronic cases identifying stridor in children needs proper history taking & thorough physical examination remains as the important key in assisting the diagnosis & management in the emergency room. Presence of red flag signs of stridor should be looked for in case of infectious causes of stridor. Delay in diagnosing the cause of stridor may leads to mismanagement of the patient and causing serious morbidity. Progression of airway obstruction may be rapid in case of infectious etiology, necessitating prompt diagnostic & therapeutic maneuvers.

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